UNITED STATES PATENT OFFICE.

IRA CHOATE, OF SOMERVILLE, AND CASTELLY O. NORCROSS, OF LYNN, MASSACHUSETTS.

ARTIFICIAL LEATHER.

SPECIFICATION forming part of Letters Patent No. 376,855, dated January 24, 1888.

Application filed September 30, 1886. Serial No. 215,023. (No specimens.)

To all whom it may concern:

Be it known that we, IRA CHOATE, of Somerville, in the county of Middlesex, and CASTELLY O. NORCROSS, of Lynn, in the county of Essex, and State of Massachusetts, have invented certain new and useful Improvements in Artificial Leather, of which the following is a specification.

Our invention has for its object to provide a compound or mixture which when freshly prepared is plastic and capable of being molded into various forms and hardens and becomes extremely rigid upon exposure to the atmosphere.

The chief object of the invention is to provide a cheap and homogeneous material for the manufacture of boot or shoe heels, soles, taps, &c., which shall utilize scrap and waste leather and excel the best sole-leather in durability, besides being capable of taking any of the styles of finish usually imparted to leather.

In carrying out our invention we grind scraps of leather into particles of any desired fineness and thoroughly mix them with glue or some glutinous substance in a fluid or semi-fluid condition. We prefer to add to the glutinous substance sufficient proportion of tannin or "tannic acid" or some other astringent to convert the gelatine thereof into leather.

To make the composition water-proof, we add any suitable water-repellent, such as bichromate of potash or shellac, or a mixture of said materials. Linseed-oil, glycerine, and other vegetable oils may be used for the same purpose. The whole mass is then pressed into the desired form by a suitable mold and is solidified and made rigid by such pressure.

The proportions of leather and glutinous or adhesive material may vary according to the desired quality of the composition, and the proportion of tannin or tannic acid will depend on the quality and condition both of the leather and of the glutinous material, as well as upon the quantity of the latter.

This composition can be pressed into articles of any desired shape and can be made very hard and durable. It is superior to natural leather where considerable thickness is required, as in boot or shoe heels, because the heel is solid, and therefore not liable to check or crack like a heel made up of lifts of natural leather.

Shoe-stock made of this improved composition is capable of either an ink or a wax burnish, or of any kind of polish which natural leather is capable of receiving.

The composition may be made into boot or shoe soles, counters, heels, shanks, tips, &c., and other articles wherein toughness and rigidity are required—as, for example, buttons, knife-handles, door-knobs, or ornamental work. For many of these uses any hard substance reduced to the required fineness—as clay, sand, sawdust, or paper or wood pulp, or iron filings—may be mixed with the other ingredients of the composition, and the material can be pressed with cloth or some flexible material.

We are aware that previous to our invention it has been proposed to grind leather and mix with caoutchouc and other ingredients foreign to the ingredients employed by us.

We are also aware that it has been proposed to pulp leather scraps and combine with paper-pulp to adapt the product to be run out into sheets which were subjected to tanning liquids.

Our invention will be readily distinguished from such processes in that we first grind the leather, then combine with glue to secure viscosity, and then add tannin to convert the glue into leather. Such a combination insures the formation of a mass which is thoroughly homogeneous throughout and which can be molded to present durable articles of considerable bulk and be made to receive and retain a high polish. In the prior process last above referred to the composition presents a fibrous mass which would naturally resist homogeneity.

We claim—

1. As an improved article of manufacture, an artificial-leather compound composed of glue, ground leather, and an astringent, as tannin, alum, &c., the same being intimately associated to present a homogeneous and durable product capable of receiving and retaining a high polish, substantially as set forth.

2. The artificial leather herein described, the same consisting of glue, ground leather, an

astringent, and bichromate of potash, the latter acting on the glue to make the compound water-proof, substantially as set forth.

3. The artificial leather herein described, the same consisting of glue, ground leather, an astringent water-proofing, and sawdust or other material to give body, the whole being intimately associated to present a homogenous and durable product capable of receiving and retaining a high polish, substantially as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 27th day of September, 1886.

IRA CHOATE.
CASTELLY O. NORCROSS.

Witnesses:
C. F. BROWN,
A. D. HARRISON.